

## Map 28

**Short Title:** NO<sub>x</sub> emissions from international shipping, t/grid

**Full Title:** Map: Nitrogen oxides (NO<sub>x</sub>) emissions from international shipping (in tonnes per grid cell)

### Diffuse Sources / General information:

The map shows nitrogen oxide (NO<sub>x</sub>) emissions to air from international shipping of the EU27 and EFTA4 countries per 5x5 km<sup>2</sup> grid cell for the reference year 2008, available in 2010.

Diffuse emissions of nitrogen oxides (NO<sub>x</sub>) are expressed in tonnes per grid cell.

### Diffuse Sources / Methodology:

#### Geographic Information System (GIS) overlay:

Emissions of nitrogen oxides (NO<sub>x</sub>) to air from international shipping are distributed according to the reporting of the countries to the Convention on Long-Range Transport of Air Pollution ([CLRTAP](#)), using the location of the harbours (GISCO), land use information (CORINE), information on the spatial pattern of coastal, international shipping routes and on navigable inland waterways. The emissions are allocated using GIS overlay techniques for distribution into grid cells with a spatial resolution of 5x5km<sup>2</sup>. The dataset is then transformed into vector polygons and projected into the E-PRTR WGS84 standard projection.

#### Comparability

Considerable spatial variation is apparent. The main reason for differences is:

- The spatial pattern of emissions is dependent on the international navigation route and/or on inland water ways and the spatial density of vessel traffic.

## **Diffuse Sources / Source Data:**

Map: Nitrogen oxides (NO<sub>x</sub>) emissions from international shipping (in tonnes per grid cell)

### **Emissions data**

Emission data used are national totals including releases from international maritime navigation (NFR 1A3di(i)) and international inland waterways, (NRF 1A3di(ii)), into air for the year 2008. These are based on data sets officially reported as national emission totals by countries to the Convention on Long-range Transboundary Air Pollution ([CLRTAP](#)). Emissions data used for gridding procedure of NO<sub>x</sub> are national totals from CLRTAP Nomenclature For Reporting (NFR). All emissions from international shipping emissions are considered as diffuse releases in the E-PRTR Register.

The methodology applied and data used in detail is described in a methodology report.

### **Administrative boundaries data**

[EUROSTAT GISCO Administrative units and Statistical units](#): Country boundaries and boundaries of administrative units (NUTS3)

### **Activity data of international shipping**

[Global Ship Emissions Proxies](#) from [Wang et al. 2008](#)

[TRANS-TOOLS](#) river network traffic volume data

[Voies Navigables d'Europe \(VFN\)](#) information on accessibility of inland waterways

[Eurostat, GISCO](#): Watercourses from EuroRegional Map v30: Hydrography (HYDRO)